Claims

1. A method of registering at least one lightning strike in the blade (5) of a wind turbine, **characterised in** that the method comprises that the lightning strike is captured by a receptor (6) in the blade of the wind turbine, from where the lightning current is completely or partially conducted through at least one electric resistor (10), thereby heating it; and that the lightning strike is registered on the background of the increase in temperature of the resistance.

2. A method according to claim 1, **characterised in** that at least one characteristic of at least one lightning strike is determined on the basis of the increase in temperature of the resistor, said characteristic comprising the amount of energy contained in the lightning strike determined on the basis of a measurement of the magnitude of the increase in temperature.

3. A method according to claim 1 or 2, **characterised in** that the point in time of the lightning strike is determined on the basis of a measurement of the point in time of the increase in temperature.

4. A method according to claim 2-3, **characterised in** that the determination of the amount of energy contained in the lightning strike on the basis of the magnitude of the increase in temperature of the resistor is performed by use of a pre-calculated or measured ratio coefficient that defines the ratio between an increase in temperature in the electric resistor (10) and the amount of energy of the current conducted through the electric resistor (10).

5. A method according to claims 2-4, **characterised in** that said characteristic is used as indicator for assessing the potential extent of damage made by said lightning strike in the blade (5) of the wind turbine.

6. A wind energy plant (1) comprising means for grounding a lightning current, including at least one receptor (6) and at least one grounding connection (7) from the receptor to an external connection to ground (9), **characterised in** that the wind energy plant comprises means (16) for measuring an increase in temperature in at least one electric resistor (10), wherein the resistor (10) is connected to the receptor (6) or to the grounding connection (7) in a position between the receptor (6) and the connection to ground (9), preferably by being inserted serially in the grounding connection (7) and serially inserted between the grounding connection (7) and the receptor (6), respectively, or by being incorporated into a measurement shunt, a measuring bridge or other parallel circuit connected to the grounding connection (7) or to the receptor (6).

7. A wind energy plant (1) according to claim 6, **characterised in** that the resistor (10) and the receptor (6) are interconnected or made integrally.

8. A wind energy plant (1) according to claim 6 or 7, **characterised in** that the at least one electric resistor (10) is preferably arranged in the blade (5) of a wind turbine on the wind energy plant (1).

9. A wind energy plant (1) according to claims 6-8, **characterised in** that the wind energy plant comprises a number of receptors (6), said receptors being each connected to an external connection to ground (9); and that at least one electric resistor (10) is connected to each receptor (6) or to a grounding connection (7) between each receptor (6) and the connection to ground (9) to which the receptor is connected; and that the wind energy plant comprises means for measuring (16) an increase in temperature in each electric resistor.

10. A wind energy plant (1) according to any one of claims 6-9, **characterised in** that the wind energy plant comprises means for

determining the amount of energy contained in the lightning strike on the basis of the magnitude of the increase in temperature.

11. A wind energy plant (1) according to any one of claims 6-10, **characterised in** that the wind energy plant comprises means for determining point in time of the lightning strike on the basis of the point in time of the increase in temperature.

12. A wind energy plant (1) according to any one of claims 9-11, **characterised in** that the wind energy plant comprises means for storing at least one of the parameters comprising the measured increase in temperature, the determined amount of energy and the determined point in time.

13. A wind energy plant (1) according to any one of claims 9-12, **characterised in** that means for measuring (16) the increase in temperature in the electric resistor (10) comprises an electronic thermometer comprising a thermo-element (16), which thermo-element is arranged in thermally conductive contact with the electric resistor.

14. A wind energy plant (1) according to any one of claims 9-13, **characterised in** that means for measuring the increase in temperature in the electric resistor (10) comprises an infrared thermo-sensor and a camera for infrared recording, respectively, means for measuring a temperature-related change in resistance in the electric resistor, a non-touch temperature sensor, an optical fibre or some other kind of equipment for measuring an increase in temperature.

15. A wind energy plant (1) according to any one of claims 6-14, **characterised in** that at least the electric resistance (10) is essentially enshrouded in thermally insulating material (11).

16. A wind energy plant (1) according to any one of claims 6-15, **characterised in** that the wind energy plant comprises means (12) for monitoring and storing registrations of lightning strikes, including optionally also characteristics of lightning strikes, said means comprising a computer unit arranged in direct or wireless connection with means (16) for measuring the increase in temperature, said computer unit being preferably arranged in or at the wind energy plant, including in the blade (5) of at wind turbine.

17. A wind energy plant (1) according to any one of claims 6-16, **characterised in** that the wind energy plant comprises means of alerting or halting the wind energy plant at a given increase in temperature in the resistor (10).

18. A wind energy pant (1) according to any one of claims 6-17, **characterised in** that the wind energy plant comprises means for dispatching an electronic message, said message comprising data relating to the increase in temperature.

19. A wind energy plant (1) according to any one of claims 6-18, **characterised in** that the wind energy plant comprises means for registering a lightning current, including a lightning registration card comprising at least one magnet strip.

20. A system (8) for use in the registration of at least one lightning strike in the blade of a wind turbine, said system comprising means for grounding a lighting current, including at least one receptor (6) for mounting in the blade (5) of the wind turbine, and at least one lightning grounding cable (7) coupled to the receptor (6), **characterised in** that the system comprises means (16) for measuring an increase in temperature in at least one electric resistor (10), wherein the at least one resistor is adapted to be coupled to the lightning

grounding cable (7) or to the receptor (6) and be inserted between the lightning grounding cable (7) and the receptor (6), respectively, in such a manner that the resistor will be heated by a lightning current.

21. A system (8) according to claim 20, **characterised in** that the resistor (10) is inserted serially in the lightning grounding cable (7) and inserted serially between the lightning conducting cable (7) and the receptor, respectively, or is incorporated into a measurement shunt, measuring bridge or other parallel circuit connected to the grounding connection or a receptor (6).

22. A resistor (10) adapted for conducting a lightning current and heating due to such current, **characterised in** that the resistor element is configured essentially as an elongate object having at its ends (13) an increased expanse transversally to its longitudinal axis.

23. A resistor (10) according to claim 22, **characterised in** that the resistor element is essentially rotationally symmetrical about its longitudinal axis and comprises an opening adapted for receiving a thermo-element (16).

24. A resistor element (10) according to claims 22 or 23, **characterised in** that the resistor is manufactured from steel, preferably stainless steel.